Teaching Notes

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Counting, pp. 2–3

Teaching Focus: to explore money, informal fractions (1/2s, 1/4s), simple addition, tens fact, counting by 10s, and place value up to 100

- Have the children look at the market scene. Say, *This is a picture of a market. What stalls/shops can you see at the market?*
- Point to the cobblestones. Say, *This is a cobbled pathway. It is made up of lots of smaller pebble/stones*. Point to a group of cobblestones. Ask, *How many stones are in this group?* (10) Point to another group. Ask, *How many stones are there in this group?* (10). *How many stones are there in each group?* Point to 5 groups of cobblestones. Ask, *How many stones would be here altogether?* (50) *How do you know? What is a quick way of working it out?* (count by 10s, 10 x table, tens fact). Discuss strategies and patterns that were noticed.
- Say, *There are many cobblestones that make up the pathway.* Ask, *Can you estimate how many cobblestones there are?* Discuss strategies (counting by 10, dividing pathway into sections, using a calculator etc.).

Fruit and vegetable stall

- Point to the fruit and vegetable stall. Ask children to identify the fruit and vegetables.
- Point to the strawberries. Ask, *How much does it cost to buy 1 punnet/container of strawberries? If you bought 4 containers how much would it cost you?* Repeat the questions using different quantities. Ask, *How many containers could you buy for $20?* Repeat the question using different money amounts. Ask, *If you had $15 how many containers could you buy? How much change would you receive?* Repeat the questions using different money amounts.
- Point to the tomatoes. Ask, *How much does it cost to buy 1 tomato? If you bought 4 tomatoes how much would it cost you?* Repeat the questions using different quantities. Ask, *How much does it cost to buy a bundle of 10 tomatoes? How many bundles of 10 could you buy for $20?* Repeat the questions using different money amounts. Ask, *Is it cheaper to buy a bundle of 10 or 10 individual tomatoes?*
- Point to the grapes. Ask, *How much does it cost to buy a bag of grapes? How many bags could you buy for $9?* Repeat the questions using different money amounts. Ask, *If you had $19 how many bags could you buy? How much change would you receive?* Repeat the questions using different money amounts.
- Point to the lettuces. Ask, *How much does it cost to buy 1 lettuce? How many lettuces could you buy for $2.50?* Repeat the questions using different money amounts. Ask, *If you had $13 how many lettuces could you buy? How much change would you receive?* Repeat the questions using different money amounts.
- Point to the oranges. Ask, *How much does it cost to buy 1 orange? How many oranges could you buy for $2?* Repeat the questions using different money amounts. Ask, *If you had $1.50 how many oranges could you buy? If you had $1.60 how many oranges could you buy? How much change would you receive?* Repeat the questions using different money amounts.
- Point to the pumpkins. Ask, *How much does it cost to buy 1 pumpkin? How many pumpkins could you buy for $4?* Repeat the questions using different money amounts. Ask, *If you had $14 how many pumpkins could you buy? If you had $15 how many pumpkins could you buy? How much change would you receive?* Repeat the questions using different money amounts. Ask, *How much do you think half a pumpkin would cost? Why? How much do you think a quarter of a pumpkin would cost? Why? How much would it cost to buy 1 and half pumpkins?*
- Point to the carrots. Ask, *How much does it cost to buy 1 carrot? If you bought 4 carrots how much would it cost you?* Repeat the questions using different quantities. Ask, *How much do you think it would cost to buy a bunch of 10 carrots? Why? How many bunches of 10 carrots could you buy for $1?*
- Ask, *If you bought 1 orange, 10 apples, and a bag of grapes how much money would you need?* Repeat with other combinations of fruit and vegetables.
- Ask, *If you had $20 to spend what combinations of fruit and vegetables could you buy?* Repeat with different amounts of money.
- Point to the apples. Ask, *How many apples are there? How many rows are there? How many apples in each row?* Ask, *How much does it cost to buy 1 apple? How many apples could you buy for $1?* Repeat the questions using different money amounts. Ask, *If you had $3 how many apples could you buy? How much change would you receive?* Repeat the questions using different money amounts.
- Point to the watermelons. Ask, *How much does it cost to buy 1 watermelon? How many watermelons could you buy for $6?* Repeat the questions using different money amounts. Ask, *How much does it cost to but half/quarter of a watermelon? If you had $5 how many watermelons could you buy?* Repeat the questions using different money amounts.
- Point to the potatoes. Ask, *How many bags of potatoes are there? How much does it cost to buy 1 bag of potatoes?* Repeat using different quantities. Ask, *How many bags could you buy for $6?* Repeat the question using different money amounts. Ask, *If you had $12 how many bags could you buy? If you had $13 how many bags could you buy? How much change would you receive?* Repeat the questions using different money amounts.
- Ask, *If you had $20 to spend what would you buy? Why?* Ask children to write out their shopping lists and the cost of the items. Repeat the questions with different amounts of money.
- Ask, *If you bought 1 apple, 1 bag of grapes and 2 carrots how much money would you need?* Repeat using different quantities of fruit and vegetables.
- Point to the lady holding the shopping basket. Ask, *How much did her shopping cost her?* Repeat with other people in the market scene.

Lolly stall

- Point to the lolly stall. Ask, *What can you see at the lolly stall?* Point to each container. Ask, *How much do these lollies cost?* (20c, 10c, 5c, 20c per lolly). *If you buy a bag of lollies how much does it cost? How many lollies do you think would be put in the bags? Why?*
- Ask children to make up their own 'lolly bag' with set amounts of money. Ask, *If you had 40c what combination of lollies would you buy? If you had $2 what combination of lollies would you buy? Why?*
- Write out a 'lolly' shopping list and ask children to work out how much money they would need. Ask, *If you wanted 2 snakes and 5 bubble gums how much money would you need?* Repeat using different combinations of lollies.

Odds and ends stall

- Point to the odds and ends stall. Ask, *What can you buy at this stall? How much do the hats cost? How much do the sunglasses cost? How much do the shoelaces cost?* Say, *The people at the market have bought some things from the stall. What have they bought? How much did the items cost them?*
- Ask, *How many hats are there at the stall? How much would it cost to buy them all? How many purple/orange/green, etc. hats are there? How much would it cost to buy 4/5/6, etc., hats? How much would it cost to buy all the pink/green, etc., hats?* Ask, *How many bags are at the stall? How much would it cost to buy them all? How many bags could you buy for $10? How much would it cost you to buy all the pink/green, etc., bags?* Ask, *How many glasses are at the stall? How much would it cost to buy them all? How many glasses could you buy for $30? How much would it cost you to buy all the pink/green, etc., glasses?* Ask, *How many shoelaces are there at the stall? How much would it cost to buy all of them?*
- Ask, *Is it cheaper to buy a hat and sunglasses separately or to buy them together for $12?*
- Ask, *If you bought 1 orange hat, 2 bags and 2 shoelaces how much money would you need?* Repeat with other combinations of objects.
- Ask, *If you had $20 to spend what combinations of things could you buy?* Repeat with different amounts of money.

Ice-cream stall

- Point to the ice-cream stall. Ask, *How many different flavoured ice-creams are there? Can you name them?* Ask, *How much does it cost to have a single cone? What does a single cone look like? How much does it cost to have a double cone? What does a double cone look like? How much does it cost to have a triple cone? What does a triple cone look like?* Say, *There are some people at the market who have bought an ice-cream.* Ask children to identify/point to the people. Point to the little girl at the top of the page. Ask, *How much did her ice-cream cost?* Point to the mother and her two children near the ice-cream stall. Ask, *How much did the girl's/boy's/mother's ice-cream cost? How much did the ice-creams cost altogether? Does the flavour of the ice-cream affect the cost?*
- Ask, *If you were going to buy a single strawberry ice-cream cone and a double chocolate ice-cream cone, how much money would you need?* Continue to ask questions involving the prices given. Have children work out the cost of purchasing different quantities of ice-creams.
- Ask, *If you had $5 what combinations of ice-creams could you buy? How many double ice-creams could you buy for $10. How many could you buy for $13? How much change would you get?* Repeat with other quantities.
- Ask, *If you bought 4 triple cone ice-creams and 1 single cone ice-cream, how much would it cost altogether?*

Add 10, Take Away 10, pp. 4–5

Teaching Focus: to explore place value, tens fact, count down, count back to and count up to

Add 10

- Model counting by 10s to 100 (use a 100 chart or a number line if necessary — See *Nelson Maths Building Mental Strategies Big Book Year 1*, pp. 21–22). Say, *Count by 10s to 100 starting at 10*. Model counting by 10s to 100 from different starting points (eg 20, 30, 40, 50, 60, 70, 80, 90). Say, *Count by 1s from 30 to 100*. Repeat with other starting points.
- Have children look at the first equation and picture. Point to the 2 yellow bundles that make 20 and ask, *How many sticks are in this bundle? How do you know?* Point to the yellow numeral '2' (2 groups of 10) to reinforce the answer. Point to the individual blue sticks and ask, *How many sticks are here?* Point to the blue numeral '6' (6 ones) to reinforce the answer. (If children are unsure revise place value using *Nelson Maths Building Mental Strategies Big Book Year 1*, pp. 14–15.)
- Point to the number 26 and say, *the 'yellow 2' relates to the 2 bundles of 10 and the 'blue 6' relates to the 6 individual sticks*. Point to the number 10 and say, *The 'yellow 10' relates to the 1 bundle of 10*.
- Point to the equation 26 +10. Say, *We can quickly work out equations like this by using our understanding of the value of numbers*. Point to the numerals and pictures and say, *When we add 26 and 10 we can think, 2 tens and 1 ten make 3 tens with 6 ones left. That makes 36*. Point to the numeral 36. Highlight that the '3' is 2 tens and 1 ten added, and then point to the blue 6 and highlight that it is the 6 ones. Point to 'yellow 3' in the numeral 36 and ask, *How did we get this 3?* (eg It came from the 2 bundles and the 1 bundle.) Point to the 'blue 6' in the numeral 36 and ask, *How did we get this 6?* (eg It came from the 6 blue sticks that made up 26.) Discuss strategies that can be applied to other equations involving +10, eg count on ten, knowledge of place value — adding one more ten. Ask, *Can you identify a pattern that occurs when adding 10 to a number? When you are adding 10, what number do you add to?* (eg the number in the tens column) *How can you do this quickly?* (eg count on by 10s from the number)
- Repeat the above questions with remaining equations and pictures.
- Extend to include other multiples of 10 to 100 (20, 30, 40, 50, 60, 70, 80, 90, 100). Say, *To do equations like this you need to focus on adding to the tens column*, eg *23 + 20 you need to think 2 tens + 2 tens is 4 tens or 20 + 20 = 40*.

Take away 10

- Model counting backwards from 100 by 10s (use a 100 chart or a number line if necessary — See *Nelson Maths Building Mental Strategies Big Book Year 1*, pp. 21–22). Use a number chart to show 10 less. Discuss the values of numbers, that is, tens and ones. Discuss what number changes/becomes 10 less. Say, *Count by 10s to 100 starting at zero*. Model counting backwards by 10s, from different starting points (90, 80, 70, 60, 50, 40, 30, 20). Say, *Count backwards by 10s from 50*. Repeat with other starting points.
- Ask, *If you have 3 and you take away 1, how many do you have left? If you have 3 tens and you take away 1 ten, how many do you have left?* Discuss similarities.
- Say, *We can work out takeaway equations quickly by thinking of the value of the numbers* (or *by thinking about how many tens and ones make up the number*). Have children look at the pictorial representations of the numbers, that is, 34 is 3 tens and 4 ones. Point to each bundle of 10 and discuss the value, eg *This bundle of 10 has 10 ones in it. 1 ten is the same as 10 ones*. Look at the equation and the visual representation of 34 –10. Ask, *What is this equation asking you to do?* (eg It is saying take away 10 from 34.) Point to the 3 bundles of 10 and ask, *If you take away 1 bundle of 10 (10) from 3 bundles of 10 (30) how many bundles would you have left?* Ask, *Do we have to do anything with the ones?* Say, *The 4 ones stay the same.*
- Repeat the questions with remaining equations and pictures.
- Use a calculator to check answers.
- Continue to use takeaway strategies to solve equations involving taking away 20, 30, 40, 50, 60, 70, 80, 90.
- Using 34 –10, you could discuss alternative strategies to work out subtraction equations:

'Count back to' strategy: Ask, *How many tens did you count back to get from 3 tens to 1 ten?* (eg 3 tens – 2 tens is 1 ten. I counted back 2 tens.)

'Count up to' strategy: Ask, *What do you have to add to 1 ten to get to 3 tens?* (eg 1 ten and 2 tens make 3 tens. I counted up 2 tens.)

'Count down to' strategy: Say, *Start at 3 tens and count down to 1 ten* (eg 2 tens, 1 ten) Ask, *How many tens did you count down?* (2 tens)

Discuss strategies, eg counting back by tens, count up to, counting down, looking at the place value of numbers, counting back using the tens fact, that is, 3 tens take away 1 ten leaves 2 tens.

How Many? (concept of 1000), pp. 6–7

Teaching Focus: to explore the concept of 1000 (quantity, place value, and making and breaking to 1000 using groups of 100)

- Have children look at the picture. Ask, *What can you see? What are the people doing? Where are they? How many people do you think there are? What did you do to help you with your guess/estimate? Are there more than 10/100/200/500/800/1000 people? Why do you think there are more than 10/100/200/500/800/1000 people?* Ask, *How many different sections are there?*
- Point to the Section A. Ask, *How many people do you think are here? Why? What clues/strategies did you use to help you with your guess/estimate?* Point to the back/first row. Ask, *How many people are in this row?* Say, *If there are 10 people in this row, how many people are in the next row? What can we do to quickly count how many people are in Section A? What patterns do you notice?* Discuss strategies: counting forwards by 10s; addition of each row 10 + 10 + 10, etc.; multiplication, that is, there are 10 rows and there are 10 people in each row (10 x 10). Discuss what method is quicker, adding rows of ten or multiplying by 10.
- Count by 10s from varying starting points to 100 (0–100). Identify rows of 10 in the picture.
- Using rows of people count by multiples of 10: 20s, 30s, 50s (identify by pointing to the corresponding rows).
- Point to Section A. Ask, *How many people are in this section?* Point to Section B. Ask, *How many people do you estimate are in this section? Why? What strategies did you use to work it out?*
- Point to the 5 top rows of Sections A, B, C, D and E. Ask, *Estimate/Guess how many people there are in these 5 sections. How did you know? What strategies did you use to help you?*
- Continue to point to a sequence of sections and ask, *Estimate/Guess how many people there are in these 5 sections? What strategies did you use to work it out?* (counting in groups of 100: 100, 200, 300, 400, etc.)
- Point to all the people in the concert hall and ask, *How many people are there altogether?* Say, *We do not have to count up individual people to find the total number of people. What strategies did you use to help you find the total?* (eg counting forwards in groups of 100, repeated addition, multiplication)
- Discuss the concept of 'rounding up to 100'. Point to each section and say, *We know that each section has 100 people*. Point from the first person in Section A up to the last person in the second last row in the Section B. Ask, *Is the total number of people closer to 100 or 200 people? How did you work it out?* Select other people in each section and ask a rounding question to the nearest 100. Select random 3-digit numbers and ask children to round to the nearest 100.
- Select an individual and identify their place value based on their placement in the stadium (that is, the top, left-hand person in Section A as being number 1 and the last person in the bottom, right-hand seat on page 7, Section J, as being the 1000th person). Use each section (that is, group of people in A) as 100, each row of people as 10, and individual people as one. Say, *Point to the person sitting in seat 124. Is this person closer to 100 or 200?* Ask children to find the location of different numbers. Rename 124, for example, as 1 hundred, 2 tens and 4 ones.
- Discuss ordinal number in relation to people in the concert hall, with the top, left-hand person in Section A as being the 1st person and the last person in the bottom, right-hand seat on page 7 (Section J) as being the 1000th person.
- **Fractions:** Ask, *How many people are in this concert hall? If half the people went home, how many people would be left? What strategies did you use to work this out?* Discuss splitting the 1000 people into 4 groups. Say, *Some people in the sections will stay with each other and other people in the sections will need to be separated*. Separate the people and say, *We have split these people into 4 groups. Point to each quarter.* Ask, *How many people are in each quarter? Repeat for other fractions*.

Counting

- Look at the picture of the people at the concert hall. Discuss counting strategies. Point to the people in the Section A. Say, *We can count by 1s. Count by 1s to 100* (end of the Section A). Ask, *Are there any other ways we can count?* (eg by 2s, 4s, 5s) Say, *This is called skip counting*.
- Say, *Count by 1s to 100. Count by 2s to 100*. Ask, *What do you notice?* (eg Counting by 2s is quicker than counting by 1s, all the numbers are even.) Point to the people in Section A to identify the pattern when counting by 2s. Say, *Count by 4s to 100*. Ask, *What do you notice?* (eg It is quicker than counting by 1s/2s, all the numbers are even.) Point to the people in Section A to identify the pattern when counting by 4s. Say, *Count by 5s to 100*. Ask, What do you notice? (eg It is quicker than counting by 1s, 2s and 4s. The pattern goes odd/even/odd/even.) Point to the people in the Section A to identify the pattern when counting by 5s.

Place Value, pp. 8–9

Teaching Focus: to explore place value to 999 and rename numbers

- Point to the pictorial representation of 157. Point to the picture of the ones. Ask, *How many ones are here?* Point to the picture of tens. Ask, *How many tens are there?* Count the tens (1 ten, 2, tens, 3 tens, 4 tens, 5 tens). Point to the picture of hundreds. Ask, *How many hundreds are there?*
- Discuss what makes up 'tens/hundreds'. Ask, *How many ones are there in ten? How many tens are there in 100?* Say, *10 ones make 1 ten, 10 tens make 1 hundred*.
- Point to the pictorial representation of 157. Point to the pictorial representation of 7 ones and the numeral 7, and then point to the 7 in the ones column. Say, *The 7 ones are represented as 7 in the ones column*. Point to the pictorial representation of the 5 tens and the numeral 5, and then point to the 5 in the tens column. Say, *The 5 tens are represented as a 5 in the tens column*. Point to the pictorial representation of the 1 hundred and the numeral 1 and then point to the 1 in the hundreds column. Say, *The 1 hundred is represented as a 1 in the hundreds column*.
- Use Arrow Cards (*Nelson Maths TRB Year 3/4th Year of School*, BLMs 5 and 6) to show the components of numbers to 999. Using the number 157 show that this is the same as 100 + 50 + 7. Overlay cards, with the 100 first then the 50 and then the 7 to show that 100 + 50 + 7 is represented as 157. Say, *Although we can only see the 1 we still know that it is 100 and although we can only see the 5 we know that it is 50*. Use a calculator to confirm/show that 100 + 50 + 7 is the same as 157. Point to the place-value chart with the numbers 1, 5 an 7. Point to the 1 and ask, *How many hundreds are here? What does 1 one-hundred make?* Point to the 5 and ask, *How many tens are here? What do 5 tens make?* Point to the 7 and ask, *How many ones are here? What do 7 ones make?*
- Using MAB find out if 157 is closer to 100 or 200. Discuss the concept of rounding to the nearest 100. Ask, *What strategies did you use to work out if the number was closer to 100 or 200?*
- Repeat the above questions with the remaining numbers on the page (348, 124, 206, 450, 999). Place MAB materials on the place-value chart to represent these numbers.

Teacher Notes continued on page 24

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Nelson Maths Building Mental Strategies Big Book Year 2

Text: Anne Giulieri and Jay Dale
Illustrations: Anna Goodwin (pp. 2–3, 18), Gaston Vanzet (pp. 4–5, 6–7, 10–11, 17, 19–20), Nick Diggory (p. 15)
Editor: Jay Dale (UpLoad Publishing Pty Ltd)
Design: Goanna Graphics (Vic) Pty Ltd
Production controller: Kirstin Boshier

Nelson Maths Building Mental Strategies

ISBN 978 0 17 025153 2

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Printed in China by 1010 Printing International Ltd
1 2 3 4 5 6 7 16 15 14 13 12

Teaching Notes continued

relationship between multiplication and division by rewording/writing the equation as 10 shared between 5 is 2 (10 ÷ 5 = 2, 10 shared between 2 is 5, 10 ÷ 2 = 5). Use concrete materials and pictorial representations to solve 'shared between' equations. Introduce children to the division term — 'divided by'. Explore the relationship between multiplication and division.

Arrays, p. 17

Teaching Focus: to explore the relationship between repeated addition/multiplication/commutative property of multiplication

- Look at the pictures of arrays. Ask, *What is this a picture of?* (chocolate). *Which block of chocolate would you like? Why?* (It is bigger/smaller, etc.) Ask, *What block of chocolate is the biggest/smallest?* Count the blocks.
- Point to the top block of chocolate. Ask, *How many pieces of chocolate are there?* Point to the first column of pieces and ask, *How many pieces are there?* Point to the next column and ask, *How many pieces are there?* Repeat the same question with the remaining columns. Ask, *What is the same about all the columns?* (They all have 5 pieces of chocolate in them.) Ask, *Do you need to count each column to know how many are in the other columns? Is there a quick way of finding out how many pieces there are in the whole block?* (You could add up each column 5 + 5 + 5 + 5 + 5, work out 5 groups of 5 or know your times tables 5 x 5.) Ask children to explain their responses. Explore each strategy. Use a calculator and the add on button to show repeated addition.
- Point to the middle block of chocolate. Ask, *How can we work out how many pieces of chocolate there are?* (Find out how many rows/columns there are.) Point to the first row. Ask, *How many chocolate pieces are there?* (7) *How many pieces of chocolate are there in the second row? How many pieces of chocolate are there in the last row? Are they the same size? Do they have the same number of pieces in each row? How many rows are there?* (3). Point to each row and say, *You have 7 pieces here, 7 pieces here and 7 pieces here. How could we quickly find out how many pieces there are altogether?* Say, *We could say 7 + 7 + 7 or we could say 3 rows of 7* (3 x 7). Ask, *How many pieces are there altogether?* Point to the left-hand column and ask, *How many pieces are there?* (3) *How many pieces of chocolate are there in the second/third/fourth/fifth/sixth/last column? Are they the same size? Do they have the same number of pieces in each column? How many columns are there?* (7). Point to each column and say, *We have 3 pieces here. How could we quickly find out how many pieces there are altogether?* Say, *We could say 3 + 3 + 3 + 3 + 3 + 3 + 3* (use the add on button on a calculator to show repeated addition) *or we could say 7 columns/lots of 3 (7 x 3).* Ask, *How many pieces are there altogether?* Ask, *What is 3 x 7? What is 7 x 3? Does the order of numbers matter when you are doing multiplication/times/group of equations? Why not?*
- Repeat similar questioning with the remaining block of chocolate (2 x 10/10 x 2). Continue to show the relationship between repeated addition and multiplication. Discuss commutative property of multiplication, that is, 2 x 10 will have the same product as 10 x 2.
- Using counters lined up in row/columns make a variety of different arrays. Discuss repeated addition and the commutative property of multiplication.

Make to 10 Strategy, pp. 18–19

Teaching Focus: to explore the 'make to 10' strategy to assist with addition computation

- Discuss adding a single-digit number to 10 (10 + 1, 10 + 2, 10 + 3, 10 + 4, 10 + 5, 10 + 6, 10 + 7, 10 + 8, 10 + 9). Discuss place-value strategies that assist in working out the equation, eg the tens stay the same and the ones column changes. Encourage children to mentally compute 'adding a single-digit number to 10'. Play team games and challenges to improve speed.
- Practise mental computations and speed with '1 more than/1 less than' problems to 20, eg 1 more than 9, 1 less than 13, etc.
- Point to the first picture and equation on p. 18. Say, *We can use the make to 10 strategy to help us solve addition equations quickly.* Point to the hands and say, *9 + 3 is close to 10 + 3. 10 + 3 is 13. We don't really have 10, we really have 9 which is 1 less than 10, so 13 take away 1 or 1 less than 13 is 12.* Point to the equation and highlight (10 + 3) – 1 = 12. Show this concept on the number line at the bottom of the page. Say, *9 + 3 or 10 + 3 is 13, takeaway 1 is 12.* Encourage children to mentally compute the answer.
- Continue to show and solve each equation using the visual prompts of hands and show how you would mentally compute the answers.
- Point to the first picture and equation at the top of p. 19. Say, *9 is the same as 'a bundle of 10' takeaway 1* (point out the green stick in the bundle). *To use the make to 10 strategy we look at the equation 9 + 2 and say, 10 + 2 is 12, takeaway 1 is 11.* Show this concept on the number line at the bottom of the page. Encourage children to mentally compute the answer.
- Continue to show and solve each equation using the visual prompts of sticks and show how you would mentally compute the answers.

Extension

- Extend to include larger numbers, that is, make to 20, eg 19 + 7 is the same as (20 + 7) – 1.

Adding 9, pp. 20–21

Teaching Focus: to explore adding and subtracting 9, adding and subtracting 11, and tens fact

Adding 9

- Point to the equation 24 + 9 at the top of p. 20. Point to the first think bubble on p. 20. Say, *In this equation we are adding 24 + 9. But we can think 24 + 10 which is 34. We can then think 1 less than 34 is 33.* Ask, *Why do we need to takeaway the 1/think 1 less than?* Say, *1 less than 34 is 33.* Point to the corresponding think bubble with the ten frames on p. 21 and say, *24 and 10 is 34.* Point to the tens frames that show this. Point to the ten fame with 1 dot crossed out and say, *34 takeaway 1 is 33.*
- Repeat with the remaining equations. Encourage children to verbalise the steps that they take to solve the equations. Check answers with a calculator.

Adding 11: Discuss strategies that are useful when adding 9, eg think of the number as 10 then take away 1. Ask, *Can you use this strategy in some way when adding 11? What would be a quick way of working out 34 + 11?* Say, *34 + 10 is 44. We need to then add 1 more to 44 because we are really adding on 11, not 10 so, (34 + 10) + 1 = 45.* Repeat with other equations involving adding 11 to any 1- or 2-digit numbers, eg 23 + 11, 7 + 11, 45 + 11, etc. Say, *We can add 9 and 11 to equations by thinking that they are 10 then either taking away or adding 1.*

- **Subtracting 9:** Ask, *What would be a quick way of working out 34 – 9?* Say, *We could think 34 –10 then add on 1 (34 – 10) + 1 = 25.* Ask, *Why do we have to add the 1 on at the end?* Repeat with other 2-digit numbers.
- **Subtracting 11:** Ask, *What would be a quick way of working out 34 – 11?* Say, *We could think 34 – 10 then takeaway 1 (34 – 10) – 1 = 23.* Ask, *Why do we have to takeaway the 1 at the end?* Repeat with other 2-digit numbers.

Take Away 10s, p. 22

Teaching Focus: to explore place value and the tens fact to solve computations

- Count forwards by 10s from zero to 100. Count forwards by 10s from random starting points (multiples of 10). Count backwards from 100 to zero by 10s. Count backwards by 10s from random starting points (multiples of 10).
- Point to the first number line and equation (20 – 10). Say, *To take 10 away from 20 you move back 10 places on the number line.* Point to the number line and the blue count-back line and say, *Count back 10 from 20.* Say, *We do not need to count back 10 from 20 by 1s. Instead, we can count back by 10s.*
- Point to the next number line and equation (100 – 10). Say, *To take 10 away from 100 you move back 10 places on the number line.* Point to the number line and blue count-back line and say, *Count back 10 from 100.* Say, *We do not need to count back 10 from 100 by 1s. Instead, we can count back by 10s.*
- Point to the next number line and equation. (60 –10). Ask, *Do we need to count back by 1s. Why not?* Point to the number line and blue count-back line and say, *Count back 10 from 60.* Ask, *What is 60 – 10?* Ask, *What do you think 60 – 20 would be? Why? What strategies would you use to work this equation out quickly?*
- Point to the next number line and equation (50 – 20). Say, *Follow along with your eyes as we jump back 20: 40, 30.* Say, *We didn't have to count back by 1s, we could count back in groups of 10.* Repeat with other equations (2-digit multiples of 10 subtract 20), eg 40 – 20, 60 – 20, 80 – 20.
- Using a 100 number chart (see *Nelson Maths Building Mental Strategies Big Book Year 1*, p. 21) count forwards/backwards from random numbers by 10s. Discuss patterns that emerge, eg the ones column stays the same and the tens column changes. Write the patterns in a sequence, eg 95, 85, 75, 65, 55, 45, 35, 25, 15, 5.
- Point to the next number line and equation (25 – 10). Say, *Follow along with your eyes as we count back 10.* Say, *Look at the equation 25 – 10 = 15.* Ask, *What number changes in the answer?* (The number in the tens column.) *Why?*
- Point to the last number line and equation (34 – 10). Say, *Follow along with your eyes as we count back 10.* Say, *Look at the equation 34 – 10 = 24.* Ask, *What number changes in the answer?* (The number in the tens column.) *Why?*
- Select other random equations involving 2-digit numbers take away 10. Discuss strategies to solve the equations quickly. Use a calculator to check the answers.

Revision

- Count forwards by 10. Complete equations involving 2-digit numbers adding 10. Discuss the patterns that emerge.

Take Away Teens, p. 23

Teaching Focus: to explore such strategies as count back, place value, tens fact, renaming numbers and distributive property

- Look at teen numbers. Discuss the value of digits, eg 13 is made up of 1 ten and 3 ones. Make the teen numbers using MAB or bundles of sticks. Say, *13 is the same as 10 and 3.* Point to the teen numbers written in blue and red on the page. Say, *The blue 1 is ten and the red is a one.*
- Point to the first number line and equation. Point to the 12. Say, *The 12 is the same as a 10 and a 2.* Say, *20 – 12 is the same as 20 – 10 and take away 2.* Point to the number line and say, *20 – 10 is 10, then take away 2 more makes 8.* Point to the blue 'jump line' and to the corresponding 1 in 12. Point to the red 'jump line' and the corresponding 2 in 12. Point to the blue and red 'jump lines' and ask, *How many does this make?* (12) Say, *Take away 10 and take away 2 is the same as take away 12.* Ask, *Is it easier to count back 12 or count back 10 and then count back 2? Why?* Discuss speed and using other facts like the tens fact.
- Ask, *If you were taking away 15 what could you rename it as/break it down to?* (10 and 5). Ask, *If you were taking away 17 what could you rename it as/break it down to?*
- Point to the second number line and equation. Point to the 12. Ask, *What is the 12 the same as?* (10 and a 2) Say, *15 – 12 is the same as 15 – 10 and take away 2.* Point to the number line and say, *15 – 10 is 5, then take away 2 more makes 3.* Point to the blue 'jump line' and to the corresponding 1 in 12. Point to the red 'jump line' and the corresponding 2 in 12. Point to the blue and red 'jump lines' and ask, *How many does this make?* (12) Say, *Take away 10 and take away 2 is the same as take away 12.* Ask, *Is it easier to count back 12 or count back 10 and then count back 2? Why?* Discuss speed, and using other facts like the tens fact.
- Repeat with the other number lines and equations. Use a calculator to check the accuracy of computations.

Extension

- Discuss other strategies that can be used, eg count up to, count down to. Point out that the same answer occurs with all strategies.